

THE MEMBERS MAGAZINE OF THE NATURAL
HISTORY MUSEUM OF LOS ANGELES COUNTY

Terra

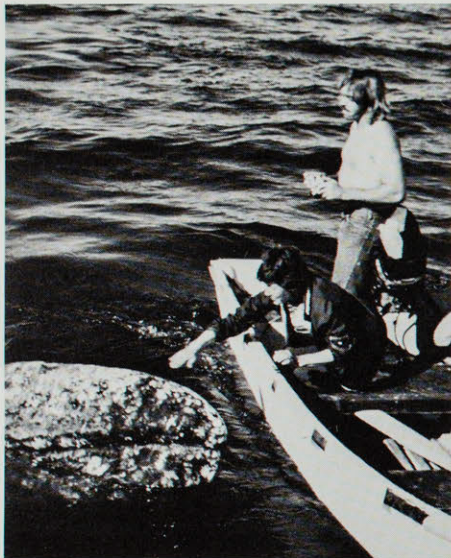
VOL. 14 NO. 4 SPRING 1976



Was Gigi the Friendly Whale?

A whale came to call on Alliance members on a recent Museum Alliance whale-watching trip to San Ignacio Lagoon in Baja California. Some days later, the whale had become front-page news in Southern California papers, pictured with head protruding from the waters, closer to a very small boat than any whale would usually dream of coming. It was a remarkable phenomenon, a whale that either came to give care or receive care. The whale stayed with our ship, the Qualifier 105, for hours, swimming under and around the small skiff at the

stern, never letting her thirty-five foot body thump or tip the little boat into which many of the passengers climbed, one at a time, to get a closer look or a prolonged touch. Was the whale "Gigi," the young female released from Marineland? Or a whale that had lost her calf? Or what? Dr. Ray Gilmore, marine mammalogy specialist from San Diego who accompanied the trip, may give his analysis of the whale's strange behavior in the next issue of TERRA, illustrated by photographs taken by Alliance members.



Janet Cornyn reaches out to pet "Gigi"?



and Succeeds photos by Kilbee Brittain

Feedback: "Take a Butterfly to Lunch"

The article on butterfly gardening in the last TERRA has made that issue one of the most popular in recent memory. Orders for the magazine and poster are pouring into the Museum Bookshop from all over the country, Jack Smith's column in the April 13 Los Angeles Times has greatly stimulated interest in the subject. Pierce College and the El Segundo Elementary School have both begun their butterfly gardens, and it is likely that other schools have also initiated butterfly projects.

Please note that several of the photographs in the article and on the poster were misidentified. This in no way affects the text of the article and its recommendations. The adult Painted Lady is a West Coast Lady; the caterpillar of the West Coast Lady is of the Painted Lady; the Acmon Blue is a species of *Shijimiaeoides*; and the Fiery Skipper is actually an Umber Skipper. Even the eye of a lepidopterist can be fooled if he doesn't know what to look for!

The Cover

Large ammonites occur in some rock formations of Late Cretaceous age (65 million years old) in southern California. This one is a 22 inch wide *Pachydiscus catarinae*. Photographed by Lawrence S. Reynolds.



The Members Magazine of
THE NATURAL
HISTORY MUSEUM ALLIANCE
of Los Angeles County
VOL. 14 NO. 4 SPRING 1976

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Our Flying Ammonite

This is her story

by Edward C. Wilson

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Conjure a Gothic scene. Night rain and wind lash towering crags beneath which an angry sea roars. Thunderclap. High up a great rock shudders, sags, and falls, crashing to the stony shore far below and bursting in the waves.

Halt the storm and make a meek dawn (madder lake in the east and all that) unfold and disclose the beached core of this great rock, revealed after 65 million years. It is our flying ammonite and this is her story.

Soon after St. Valentine's Day, 1975, Michael Hammer, one of the Natural History Museum of Los Angeles County's dedicated preparators of fossils, told me that he had heard of a big ammonite newly found on a beach at Point Loma in the city of San Diego. Mike had the names and telephone numbers of the two finders, whom I called and arranged to meet on Point Loma in a few days.

Ammonites are an extinct kind of marine

mollusk, somewhat akin to the living chambered nautilus. Like the nautilus, ammonites have coiled shells divided internally into chambers. The animal, which probably resembled an octopus, lived in the largest chamber while keeping the others filled with varying combinations of water and gas adjusted to the depth in the sea where it chose to live. With more gas, it could live at a higher level and with more water at a lower one and yet not have to swim much to stay there. Ammonites became extinct at the same time as the dinosaurs, about sixty-five million years ago at the end of the Cretaceous Period.

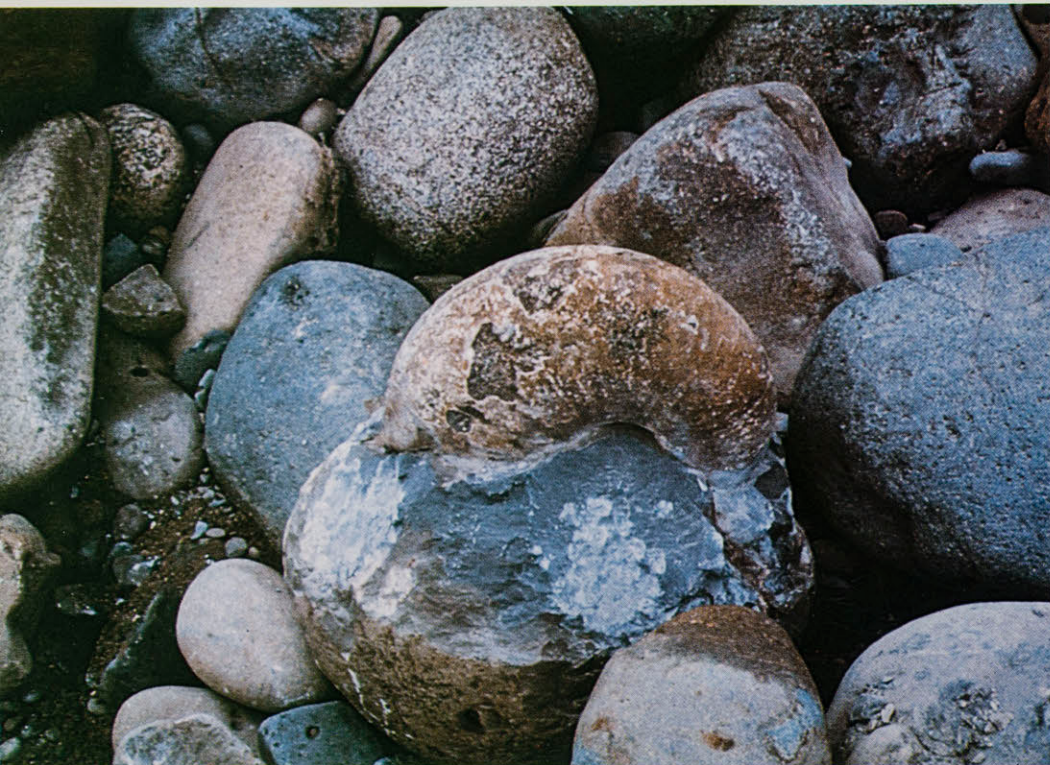
Ammonites are useful to paleontologists as "index fossils" because they evolved rapidly, were world-wide in occurrence, were abundant, and were widely distributed by currents after death since the shell floated for a time before becoming waterlogged, sinking, and being buried. They also are prized by amateur fossil collectors

because of their beautiful shapes, shell patterns, and, in some, still lovely iridescent shells.

I knew that some strata at Point Loma were of Late Cretaceous age, or about sixty-five million years old, and that a few exciting big ammonites had been collected there many years ago. None of these had come to our Museum's invertebrate fossil collection, although we had acquired similar specimens from rocks of the same age farther south in Baja California Norte, Mexico.

The Point Loma beach with cliffs of Cretaceous age is on Federal property near several important military installations and permission to enter must be obtained in advance. A few telephone calls elicited marvelous cooperation from various officials, who approved of our examining the specimen to see if it should be salvaged.

Several days later, I arrived in San Diego with fellow paleontologist George Kennedy.



"... we trekked across a beach jumbled with big slippery boulders, and, there, lying right among them, was the ammonite ... It was like a work of art."
Photo by G. L. Kennedy



"... and Dick zoomed away, trailing the ammonite beneath him in a lovely arc."
Photo by G. L. Kennedy.

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"His assistant, who was on the beach with us, hooked the cargo sling to the cable ..."
Photo by G. L. Kennedy.



"After horsing the ammonite onto the tire, we made an oriole nest-like sling for it with the ropes and poles and then painfully shouldered this contrivance over the slippery rocks, with frequent stops for rest ..."
Photo by G. L. Kennedy.





"I . . . removed much of the concretion . . . with a jack hammer . . . which improved the beauty . . . and permitted us to identify . . . it . . . The scientific name is *Pachydiscus catarinae* Anderson and Hanna, 1935."

Photo by Lawrence S. Reynolds.

"We presented the cast to Cabrillo National Monument Superintendent Thomas Tucker for their Visitors Center on Pt. Loma where it was put on display."

Photo by the author.

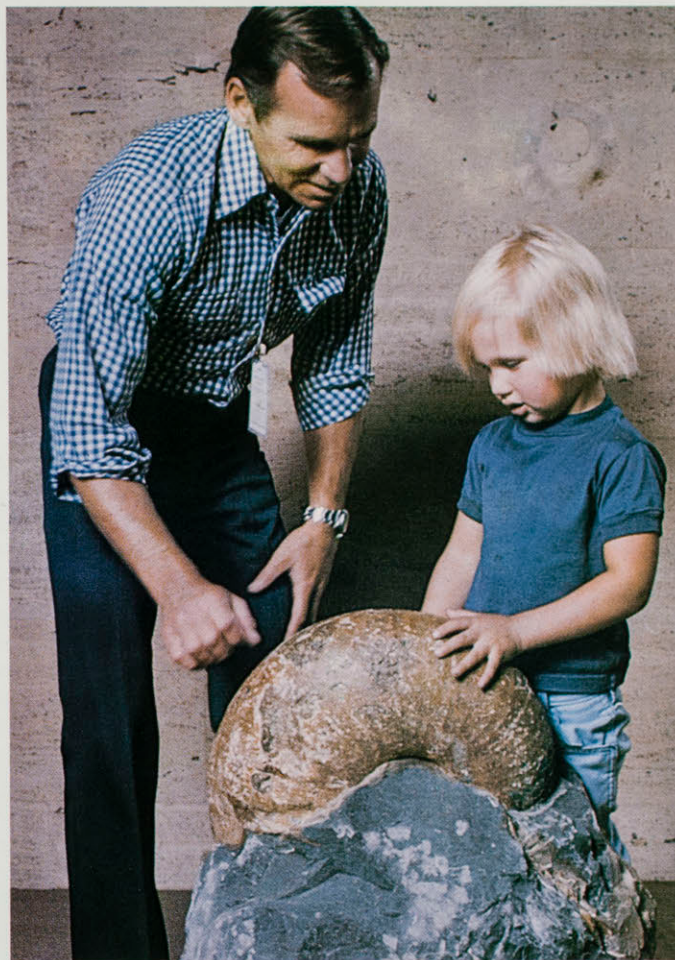
" . . . Brian Brockmeier and Brad Riney, the two praiseworthy young men who . . . found the ammonite and correctly notified a museum."

Photo by C. B. Kennedy



" . . . the ammonite went on temporary display just as we had brought it in . . . Museum visitors could touch it . . . three year old Christian Barnes told me that it felt good."

Photo by Lawrence S. Reynolds.



We met George Moore, an old friend from the U. S. Geological Survey, and Denny Davis from the National Park Service, who had been assigned to see us through this project. We also were joined by Brian Brockmeier and Brad Riney, the two praiseworthy young men who had found the ammonite and correctly notified a museum.

From here on, the number of people who became involved in this salvage are so numerous that it would be excessive to list all of their names. They were wonderfully helpful and we are grateful to them. Just getting to the site involved contacting the officials already mentioned and in addition passing through a Coast Guard station, which was manned by the Army, and then climbing down to the beach, which was technically Navy property, although it was administered by the National Park Service. Furthermore, the Federal Aviation Administration, the Air Force, the Marines, the San Diego Police Department, and even somebody called National Security want you to check in before you land your helicopter near this particular beach because of some hush-hush hardware called Battery A or something. But I am getting ahead of the story.

We parked near the beach and walked to the Coast Guard station where a charming housewife offered us lemonade and waved us through the compound to the edge of the cliff. From there we climbed down a rope to a wooden ladder shakily propped below, and down the ladder to some huge slimy rocks, and from the rocks to the sand beach. The rope was tied to a fog horn that blasted magnificently every nineteen seconds and caused permanent hearing loss to man or beast on the rope or on the ladder or on the rocks or anywhere nearby if they did not cover their ears tightly.

Have you ever tried to convince a bunch of people carrying a bunch of equipment down a sheer cliff on a rope and a ladder that they should let go of everything and cover their ears with their hands every nineteen seconds? A lot of us got adept at it with three weeks' practice, but our injured continued to cause trouble, especially those who had to hold onto their injured whatever to keep from bleeding too much while they tried to cover their ears and still keep from falling. The best show in this class kept four fingers over a bloody eye and a thumb in the ear.

So we went down the rocks to the sand, which was exposed only at low tides. After a long walk on the sandy beach, we trekked across a beach jumbled with big slippery boulders, and, there, lying right among them, was the ammonite.

The specimen was a beauty. It originally

had been the nucleus of a concretion more than two feet in diameter. Concretions are naturally-cemented masses of stone (in this case, sandstone) and some have a fossil for a nucleus. About half this concretion had disappeared, leaving part of a large ammonite protruding from the remaining mass of rock. It was like a work of art. Even the colors were good — a rich brown fossil in a neutral gray rock.

Over the telephone, Brian and Brad had told me that they guessed it might weigh a hundred-and-fifty-pounds. On the beach, they told us that they had chosen this weight because the specimen was about the size of a hundred-and-fifty-pound man in a fetal position. Oh, my. It probably weighed more than six hundred pounds then. When we got it back to the Museum three weeks later, it still weighed in at five hundred pounds.

On the beach, we set to work with a big sledge hammer to trim as much excess rock from the concretion as we could without endangering the fossil. It turned out to be a very hard concretion, the kind of rock that geologists call a hammer bouncer. Generally the sledge bounced right off, but occasionally it took some rock with the bounce.

So there we were, grown men taking turns bouncing a big sledge hammer on a six hundred pound rock on a beach that was so packed with other big slippery rocks that standing was difficult. That much weight was impossible for us to lift without special equipment. The tide was coming in fast and the Point Loma roads would be closed at 4:30, so we reluctantly had to abandon the ammonite on the beach, hoping that the surf would stay low and not endanger it.

We stayed in San Diego that night and next day checked with the authorities about the problem. They prohibited boats or vehicles on the beach. We went back to the site with two stout poles, an old truck tire, and ropes. After hoisting the ammonite onto the tire, we made an oriole-nest-like sling for it with the ropes and poles and then painfully shouldered this contrivance over the slippery rocks, with frequent stops for rest, until the fossil was against the cliff base and above the ordinary tide line. Then we covered it with dried kelp and things to camouflage it from possible vandals and returned to Los Angeles to plot.

Many people at the Museum gave us ideas about how to get the ammonite off the beach, but none seemed right for this situation. I knew that a helicopter would be the simplest method and got permission for our director, Giles Mead, to hire one providing the specimen would be worth the cost. I knew that it was worth it. After some disap-

pointments with other companies, I found Dick Hall, chief pilot of Briles Wing and Helicopter, Inc. of Santa Monica, and we were in business. We worked out the logistics involving the weather, the tides, all the old — and some new — government agencies to be cleared with, and set 9 A.M. on a Thursday to meet at the site.

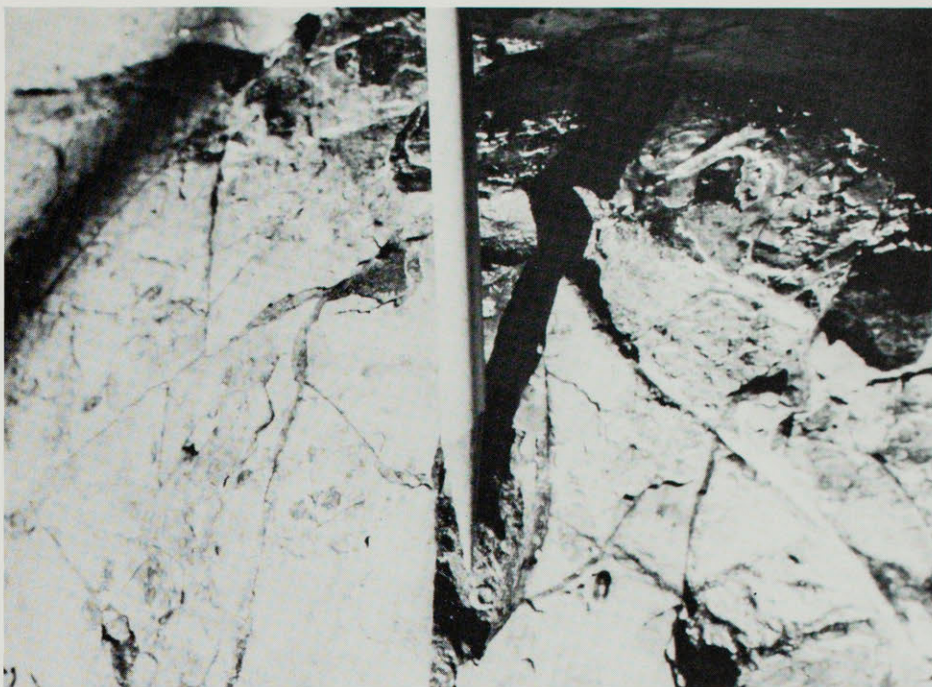
That Thursday turned out to be crowded. First there was our Museum crew and friends, then a modest contingent from the Southwest Fossileers, a San Diego-based group of amateur paleontologists who were giving us moral and physical help, and then there were the discoverers and their friends and relatives, and all the government officials, and the Navy fire truck, and — well, simply a lot of people, some of whom wouldn't tell me who they were. I'd been asked to avoid publicity, so none of them was press.

A few of us hiked down the beach and moved the ammonite with the contrived sling as far out from the cliff into the low tide area as we could. The helicopter rotors have a forty-foot diameter and Dick needed all the space away from the cliff that we could give him. We trekked back and met Dick and his two assistants who flew in on time and landed near the cars and people. He allowed us twenty minutes head start to take his cargo sling to the ammonite and load it. Then he flew around the point to us with a cable suspended from the helicopter. His assistant, who was on the beach with us, hooked the cargo sling to the cable and Dick zoomed away, trailing the ammonite beneath him in a lovely arc. It had been born and it had been buried in the sea of a world without men, it had been entombed in rock for sixty-five million years, and now it rose again as a creature in the air.

Dick nestled the dangling ammonite into the back of our truck to thunderous applause from his audience and we drove it back to the museum. What could be simpler?

My life could have been simpler if I hadn't had to leave at 4 A.M. the next morning on a National Geographic Society sponsored fossil-collecting expedition all the way down the new Baja California highway to Cabo San Lucas and back. But that's another story.

Two weeks later, and back safely at the Museum, I accessioned the ammonite with the registrar, catalogued it in the Invertebrate Paleontology Section records, asked the Exhibitions Division to prepare a display base, wrote an announcement for our Terra Calendar, and typed an explanatory label that went to the printer to be made up for display. Six months after that, all these things had been done and the ammonite



"Inside . . . is another tiny ammonite, less than 1/2 inch in diameter . . . Hopefully, an ammonite researcher will . . . tell us if this might be a mother and baby."
The scale of the tiny ammonite is indicated by the size of the pencil.

Photographs by the author.



went on temporary display just as we had brought it in. It was a double-barreled example of a beautiful invertebrate fossil and of a concretion with a nucleus. Museum visitors could lean over a railing and touch it if they wished to feel the texture of the shell and rock. An early visitor, three-year-old Christian Barnes, told me that it felt good.

In the intervening six months, Museum staff members and volunteers had made a hollow, resin-lined, plaster cast of the ammonite that was painted by staff artist Mary Butler. The cast was a dead ringer for the original and had the added virtue of being light weight enough to be lifted easily by one man. We presented the cast to Cabrillo National Monument Superintendent Thomas Tucker for their Visitors Center on Point Loma where it was put on display. This Visitors Center is a handsome building with informative exhibits about Point Loma and a stunning panoramic view that sweeps from downtown San Diego southward along the curving Silver Strand to Mexico.

Meanwhile, back at our Museum, the north wing construction made it necessary to take the real ammonite off display after it had been up for four months. I took this opportunity to remove much of the concretion from it with a jack hammer. The newly-exposed part greatly improved the beauty of the specimen and permitted us to identify and measure it for the first time. The scientific name is *Pachydiscus catarinae* Anderson and Hanna, 1935, and our specimen is twenty-two inches wide, which is large for the species. It is now ready for scientific study.

By the time you read this, the ammonite should be back on display as part of a new exhibit called California Fossils. Come see it and look closely for a place where a piece of the shell broke away in the final cleaning process. Beneath this piece, and therefore inside the fossil, is another tiny ammonite, less than one-half inch in diameter. It is shaped like a miniature of the big one that it is inside and may prove to be a juvenile of the same species. The living paper nautilus broods its eggs inside the shell. Might our ammonite have done this?

Hopefully, an ammonite researcher will study this specimen soon and tell us if this might be a mother and her baby.

Meanwhile, let's take a poll on it. How vote you — yea or nay? ☐

A flying ammonite was just what Edward C. Wilson, Curator of Invertebrate Paleontology at the Natural History Museum of Los Angeles County, needed to tell TERRA readers about the four functions of a museum: acquisition, repository, education, and research.



Torch of Fire, Crown of Gold

by **Bruce G. Belt**

Photo by Dorothy H. Seligman

Along San Vicente, each year the dazzling display of *Erythrina caffra* in bloom welcomes the early spring. People have gathered from far and near for twenty years to absorb the joy of their spectacular beauty. Now, there is a proposal to replace these trees with pavement.

Urban ugliness is a pervasive blight. With the corrosion of time and poison of neglect, the beauty of a city can decay. Rehabilitation is costly, as the genuinely handsome seventy million dollar Los Angeles Mall in the City Hall complex demonstrates. The wise decision to include flowering trees in the landscaping of that Mall will enhance its appeal just as the planting of *Erythrina*, *Cassia* and *Acacia* elsewhere in the city has created foci of color and beauty. It is difficult to understand a concept which spares no expense to decorate the Mall with one

hand while it decimates San Vicente with the other.

To gain perspective on the long campaign to promote the propagation of flowering trees in Southern California, we visited Dr. Samuel Ayres, Jr., whose pioneering efforts have been both guide and stimulus to others. The professor wore work clothes. On that sparkling Sunday afternoon, Dr. Ayres was rapt in his favorite avocation: gardening. A professor and eminent practitioner of dermatology, on weekends he and Mrs. Ayres virtually manicure the three landscaped acres which surround their home in the foothills of La Canada.

"I'm not a professional by any means as far as horticulture is concerned," Dr. Ayres told us with his customary modesty, "but I've had this hobby, particularly since our first visit to Hawaii, and we have tried to grow

and develop and make available some of these new species of flowering trees and shrubs." The Ayres' extraordinary garden contains specimens they have brought from the far reaches of the world.

"Flowering trees have been neglected in planting in Southern California," Dr. Ayres continued, looking at us with friendly eyes from beneath his bushy brows. "When people come here from the eastern part of the United States, they plant the things they are familiar with: maples, elms, pines, junipers and that sort of thing. Here they are in a Mediterranean type climate, which is unduplicated anywhere else in this country, where you can grow very showy flowering trees such as are found in Australia, South Africa, parts of South America, Mexico, and yet flowering trees have been totally neglected, ignored by many of the nurseries."

Today, that neglect is no longer total. "The planting of the *Erythrina caffra* from South Africa on San Vicente Boulevard between Federal and the ocean is an outstanding example of the planting of flowering trees," he explained.

Quite a few years ago, Dr. and Mrs. Ayres happened to drive along that boulevard just after "they had taken up the suburban tracks from the center of San Vicente. We were commenting as we drove along what a wonderful place this would be to plant some flowering trees like coral trees. I called Mr. Fred W. Roewekamp who at that time was City Forester of Los Angeles, and told him about my thought.

"He said, 'Well, Dave Barry is already working to form a park district to do exactly that.'

"I knew Mr. Barry personally. He had a real estate business with an office on San Vicente Boulevard and was an amateur horticulturist of great enthusiasm, so I talked to him about it and he was already well along with the project."

After Los Angeles had started *Erythrina* as far as 26th Street, Dr. Ayres thought it seemed a shame not to extend the planting all the way down to Santa Monica. Los Angeles Beautiful arranged a meeting with the city fathers of Santa Monica who felt that it was a very good idea and so it was done.

It has been necessary to rescue the trees more than once during the ensuing years. "Three or four years after some of the first planting in Los Angeles had been done, some of the trees began to die. It was found that one of the inexperienced maintenance men of the city had sprayed arsenate of lead around the trees to kill the weeds and it killed a number of the trees." With a quiet smile, he shook his head of silver hair at this memory, vivid through these many years, but his only comment was, "That was stopped.

"Even later, after the trees on the Santa Monica part had been well-established, they began to get sick and die. One of my patients called me at the office one afternoon and said that she had just read in the Santa Monica *Outlook* that the head of the Park Department of Santa Monica was going to take the trees out because they weren't suited to that area. I knew that wasn't so."

Dr. Ayres arranged a meeting which was virtually a diagnostic clinic. He invited the Director of the Arboretum, the Los Angeles City Forester, and representatives of the City of Santa Monica including their Park Superintendent. They discovered that the Los Angeles section had grass and had sprinklers for watering the trees.



Erythrina caffra
permission of the California Arboretum
Foundation, Inc.
photo by Ralph D. Cornell

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Gnarled external root structure adds
interest to the *Erythrina caffra*.



Photo by Dorothy H. Seligman

"They don't require a great deal of water," Dr. Ayres explained, "but they do have to have some. On the other hand, in order to save money, the trees that were planted in Santa Monica didn't have any sprinklers nor any lawn and that's why they were dying: inadequate watering. So they put in sprinklers and ever since then the trees in Santa Monica have done beautifully."

The present threat to the *Erythrina caffra* on San Vicente comes from the recent Brentwood-Pacific Palisades Proposed District Plan to transform this boulevard into a six-lane highway. Citizens from all over the city gave voice to their rage and disbelief that this beautiful boulevard might vanish in a desolation of cement.

"It would be a terrible thing if it were done," Dr. Ayres said.

TERRA'S staff suggested the trees might be protected as a cultural treasure by the Los Angeles Cultural Heritage Board. This idea met with enthusiasm when it was presented to the Board by Marvin Braude, Los Angeles City Councilman for this district, the Eleventh. Councilman Braude has always been opposed to any plan which would destroy these *Erythrina*. Los Angeles Beautiful sent a letter of protest to the Los Angeles City Planning Commission. Following the December 11th, 1975 meeting of the Commission, Mr. Frank Eberhard assured Los Angeles Beautiful that the Commission had reaffirmed its position that San Vicente should not be widened and that the coral trees should not be removed. It is unlikely the Los Angeles City Council will reserve that decision. For the moment, the danger appears to be contained.

"Shed no tear — O shed no tear,

The flower will bloom another year," sang Keats. Perhaps, but without continuing vigilance San Vicente may yet lose the blooming of that mass of red, that torch of fire.

Erythrina, after all, is the official tree of the City of Los Angeles. Dr. Ayres recalled that Mayor Sam Yorty, having returned from one of his frequent trips abroad, was heard to remark that he had been impressed with the beautiful flowering trees he had seen in some of the European cities, especially Paris. He didn't see why Los Angeles couldn't have more flowering trees. His comment was mentioned at one of the Board meetings of Los Angeles Beautiful.

"I immediately took note because of my interest in flowering trees, believing that they do enhance the attractiveness of a city," Dr. Ayres remarked. "I told this to Mrs. Valley Knudsen, founder and at that time President of Los Angeles Beautiful, and suggested that we could designate some flowering tree as the official city tree of Los

Angeles.

"An official request was sought and received from Mayor Yorty and after a good deal of discussion, it was felt by members of the horticultural committee that the *Erythrina* coral tree, a member of the pea family (*Leguminosae*), would be an ideal candidate for several reasons: there is no place else in the United States where it can be grown outside of Florida and Hawaii; it is spectacular in bloom; it appears to be relatively smog-resistant; finally, there are a number of species, some of which could tolerate the colder areas inland, while others could grow well near the coast where the climate is milder."

Erythrina was designated the official tree as a genus without indicating any specific species. This suggestion was approved and on March 7th, 1966, at an Arbor Day ceremony, Mayor Yorty proclaimed *Erythrina*, the Coral Tree, the Official Tree of the City of Los Angeles.

"It seemed appropriate to get out a little booklet which would give information about the *Erythrina*," Dr. Ayres continued as he glanced through the brightly-illustrated eight-page pamphlet published by Los Angeles Beautiful in 1967. "When we were getting ready to publish the booklet, there was some argument about some of the species. I recalled reading a monograph by Dr. B. A. Krukoff, a world authority on *Erythrina*, and I wrote to him in order to clarify the names of some of the species. He gave us some very helpful information.

"Some time later, a copy of the booklet was sent to Dr. Krukoff and almost by return mail we got a letter from him saying that he had just returned from Central America, from a seed collecting expedition for a pharmaceutical company. He had seeds of about fifteen species of *Erythrina*, none of which had been grown in California. Would we be interested in having any?"

Needless to say there was avid interest. "Dr. and Mrs. Krukoff brought a suitcase full of *Erythrina* seeds, about thirty pounds of seeds." In October 1969, Dr. Krukoff presented this treasure to the Mayor in a ceremony at City Hall as an award from Merck Sharp & Dohme to the City of Los Angeles for continuing efforts toward beautification and in recognition of the designation of *Erythrina* as the official city tree.

The seeds were distributed to the Los Angeles State and County Arboretum, to the Botanic Garden at UCLA, and were also tested by the City itself.

"A few years later, Dr. Krukoff came out with another batch of seeds, about the same number, of some additional species. Since they had been collected in areas of higher elevations of Central America, they

might be expected to tolerate our climate since none of them were really tropical. Some have proved satisfactory, many are still being tested, and it has been a great boost to our *Erythrina* population in California."

This single genus is but one of the floral pathways of Dr. Ayres' influence, one hue of a rainbow. We could not avoid imposing on the charm of our dignified host to pursue other dimensions of his ubiquitous passion.

Of equal delight to him, for instance, is the *Cassia*, another genus of the pea family, and rival to the *Erythrina* as the most spectacular of flowering trees.

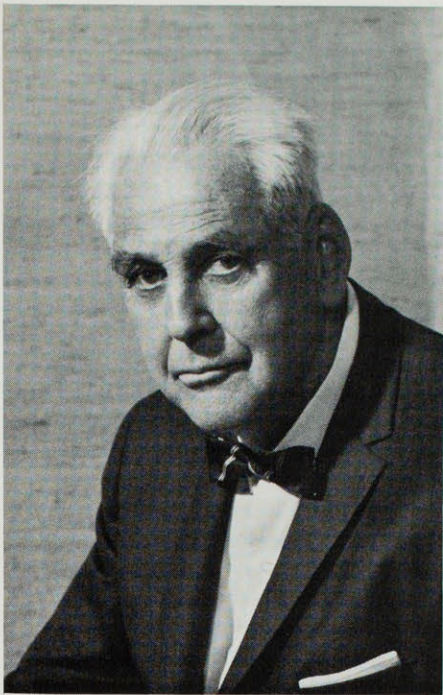
"The Golden Shower tree of Hawaii and the tropics is a *Cassia*, but we can't grow it here because its needs are too tropical. We can grow other species which are just as beautiful. We have them growing right here in La Canada and at the Arboretum. One of them we nicknamed the Crown of Gold, the *Cassia carnaval*."

A native of Argentina, *Cassia carnaval* owes not only its popular name but also its initial introduction in California to Dr. Ayres. A display at the Arboretum reveals that Dr. Ayres had given them seeds from his own specimen tree and that in 1964, when a number of samples were growing successfully on the grounds of the Arboretum, they were introduced to the nursery trade.

What Dr. and Mrs. Ayres had begun as individuals has been vastly expanded by the introduction program of the Los Angeles State and County Arboretum which includes the exchange of seeds and plants with domestic and foreign arboreta and botanic gardens all over the world. This sequel, this inherited function, could scarcely be more appropriate.

"I was so impressed with the beauty of the flowering trees and shrubs in Hawaii when we visited the Islands in 1939," Dr. Ayres recalled, "it seemed a shame we couldn't do something like that in Southern California. Coming back to California was such a contrast. It was just monotonous green. You could drive for miles and not see a single flowering tree. After several years of pondering, I brought the matter up at a meeting of the Southern California Horticultural Institute and suggested that they form a committee to see what could be done about getting a botanic garden established." The idea met with unanimous approval.

"Henry Davis, President of the Institute, pointed his finger at me and said, 'You be chairman of the committee and appoint your own committee.' We got together about half a dozen people who expressed an interest and we started to look for a possible location for a botanic garden. We



Dr. Samuel Ayres, Jr. photo by Alexander

spent a year looking for various sites and for one reason or another we couldn't seem to find one.

"Then someone said, 'Huntington Gardens has about a hundred acres of undeveloped ground. Maybe they'd be interested in going in on it.' We spent nearly another year negotiating on that. Finally, the Directors of the Huntington decided that Mr. Huntington left the money to establish a library set in a garden but he didn't say anything about a botanic garden, so we gave that up." Dr. Ayres laughed as if no defeat were ever permanent, a laugh in which his eighty years dissolved and vanished.

"Shortly after that, some friends invited us to have a picnic on their new lot in Arcadia and also to see the Baldwin Ranch which was close by. I'd never heard of Lucky Baldwin's Ranch. We went over and here was this property which had gone to wrack and ruin. It had been vandalized. The buildings were all scarred and mutilated.

"A tract office had just been opened on Tallac Knoll and the ranch was ready for subdivision — street maps had already been drawn, stakes were placed, and they were about to put the lots up for sale. I told the tract manager, Wesley Davies, about the idea of making this into a botanic garden. He thought maybe they could set aside a few acres around the lagoon and make a park out of it. I said, 'I mean the whole thing.'"

Dr. Ayres immediately phoned his good friend John Anson Ford, Los Angeles County Supervisor, who agreed that this

was a site worthy of genuine consideration. After the Arboretum Committee had explored the ranch, they met with the Board of Supervisors.

"Mr. Howard Miller of our committee drew up a prospectus about what we could do, what a wonderful thing it could be. He said this could become the Kew Gardens of the West. That impressed the Board of Supervisors, so a couple of weeks later the committee and the Board went out and looked at the property and they went for it like that."

With the solid and unswerving support of John Anson Ford, the Board voted to finance the project.

"Nonetheless," they said, 'We'll have to get the state in on this. It's too big a project for the county.' It took some special legislation through Sacramento to enable the state to participate. That took almost another year.

"Meanwhile, Mr. Harry Chandler, who owned the ranch, went along with the idea and took the property off the market. He didn't go ahead with the subdivision. It was a very public spirited thing to do."

Mr. Chandler accepted \$320,000 for the hundred and eleven acres. Lucky Baldwin had paid \$200,000 for somewhat more acreage including this ranch in 1875 so it is clear Mr. Chandler could have realized a far greater sum by subdividing the property.

"I don't think he's ever been given sufficient credit," Dr. Ayres stated. "If Mr. Chandler hadn't taken that land off the market, there would be no Arboretum today."

After months of complex negotiations, it was arranged that the county would lease the land from the state and would also pay for the capital improvements through a newly-created Department of Arboreta and Botanic Gardens. A non-profit California Arboretum Foundation was incorporated to stimulate public interest and to raise funds. Dr. Ayres has served continuously as a member of the Foundation which during this twenty-five years or more has raised over a million dollars to further projects at the Arboretum.

"The Arboretum is not only a beautiful botanic garden," Dr. Ayres explained, "but it is also a beautiful historical monument because it contains the old buildings: The Queen Anne cottage which was Lucky Baldwin's guest house; the old Hugo Reid adobe which goes way back in California history, and the Indian dwellings which have been constructed, wickiups they call them. The old Santa Anita Railroad Station has been moved onto the grounds of the Arboretum. Then, of course, there are the two lagoons. It is unique in Southern California to have lagoons fed by natural spring

water."

Be that as it may, the propagation of flowering trees is nearest to Dr. Ayres' heart. With deep satisfaction, he mentioned a few examples of the Arboretum's success in this continuing program.

"The Arboretum has a policy of giving trees of new species to various schools on Arbor Day each year, usually a flowering tree, often a new introduction. They have given away thousands of trees.

"A few years ago when the Camp Fire Girls celebrated their Fiftieth Anniversary, the Arboretum assisted in arranging for them to grow and plant several species of *Erythrina*. The girls themselves grew these under supervision and transplanted them to create the Flame Tree Forest of over one thousand trees down in Harbor Park in the Wilmington area."

Furthermore, the success of the Arboretum became a stimulus for similar efforts elsewhere in the county.

"Shortly after the Arboretum was established, Mr. Manchester Boddy, who owned what is now Descanso Gardens, decided he would not live there any longer and his land was about to be put up for sale and subdivision. Some local citizens here in La Canada decided that it would be a shame to see that property go since it was so beautifully developed. Mrs. Forest Smith formed a group called the Descanso Gardens Guild and persuaded the county to purchase that property."

The enchanting Descanso Gardens were saved and were placed under the direction of the Department of Arboreta and Botanic Gardens.

"A few years after that, down in Rollings Hills on the Palos Verdes Peninsula there was a big canyon which had been used as a dump and fill for trash, much to the distress of the local property owners. These citizens, under the leadership of Mrs. Frances Young, decided this would make a fine botanic garden and got the county interested."

Under a unique arrangement, the people in the Department of Sanitation worked in close cooperation with the Department of Arboreta and Botanic Gardens during the last stages of the sanitary fill to artistically contour the land so the planting could begin as soon as the fill was completed. The property became the South Coast Botanic Garden, a third division of the Department of Arboreta and Botanic Gardens.

"Each one of these units has a citizen's group which is helping and aiding it." Dr. Ayres' wise, calm eyes looked thoughtful. Many hands and hearts have joined along the way. His fledgling concept had matured with sturdy vigor and was propagating its



Queen Ann's Cottage
Hugo Reid Adobe
photo by Bruce G. Belt



Cassia carnaval
permission of the California
Arboretum Foundation, Inc.
photo by Ralph D. Cornell

own kind.

George Spalding dedicated his history of the Arboretum, *The First Twenty-five Years*, "to Samuel Ayres, Jr., who thought there should be more color in the Southern California landscape and did something about it." Dr. Ayres' gentle persuasion, his persistence despite disappointment and delay, his steady devotion year upon year, and always the quiet mighty force of his personal example, has left us a legacy of flowering beauty.

"Everyone worked together," Dr. Ayres said. "It's been a lot of fun. I've enjoyed it." Off into his sunlit garden walked this man who has refreshed our lives with a touch of grace.

For, lo, the winter is past,
the rain is over and gone;
The flowers appear on the earth;
the time of the singing of birds
is come . . .

Song of Solomon 2:11-12 □

Dr. Bruce Belt, physician and teacher, has enjoyed a long friendship with Dr. Ayres. This is his first TERRA article.

TERRA is grateful for the loan of two color separations from the recently republished book, *Color for the Landscape*, Mildred E. Mathias, Editor, Photography by Ralph D. Cornell, FASLA. The book has been reissued jointly by Los Angeles Beautiful, Inc., California Arboretum Foundation, Inc., Southern California Horticultural Institute, Inc., and Thomas Payne Foundation for Wild Flowers and Native Plants, Inc.

the underground

*Animals Beneath Us, and What, If Anything
To Do About Them In The Garden*

by Kilbee Brittain

William III of England was riding his horse one day in 1702, a day destined for history. It has been recorded that "a little gentleman in black velvet" caused the king to fall from his horse, because the horse stumbled in the little gentleman's hole. William III died of complications of the fall, and "the little gentleman in black velvet", a euphemism for the mole, became something of a Tory hero.

And that's the last time, except in children's literature, that one of the creatures of the underground has been awarded hero status.

Plains, deserts, forests, mountains, beach cliffs, your garden — underneath the surface that we see is a netherworld network of holes, tunnels, dens, storage chambers, escape hatches, all made by as numerous, varied and industrious a bunch of underworld characters as the most pessimistic policeman might imagine.

The world is riddled with holes because of this underground. They are all about us, doing what we wish they wouldn't, escaping when we're sure we have them, multiplying

beyond any sense of what's fair, and for creatures so small, taking up a lot of our time and effort.

Animals have gone underground for many reasons: safety, warmth or coolness, sleep, foraging for food. Many worms and some insects live in the soil. Lizards and snakes bury themselves in soft sand and earth. One of the dangers of walking in soft sand in our Southern California deserts is the possibility of stepping on a sidewinder, buried, except for eye ridges, in cool sand during the heat of the day, invisible except for the remaining S-curves in the sand.

True burrowers dig long tunnels, but many animals live in less complex holes. Coyotes sometimes live in holes scraped out of the soil, as do hyenas and wild dogs in Africa. Some kind of dugout is the favorite home for most mammals. The rare platypus makes a burrow, as does its Australian neighbor, the wombat. Armadillos dig down to find worms and insects as well as to make burrows. Badgers dig complicated

burrows that are used for generations. "Foxes have holes," Jesus observed in Mathew 8:20. Other animals, like the woodchuck, use burrows for hibernating.

"They lived with their Mother in a sand-bank, underneath the root of a very big fir tree." Peter Rabbit was a lucky fellow to get back to his burrow, even if he had only camomile tea for dinner, but at least he knew, and we know, from Beatrix Potter's accurate as well as beautiful illustrations, that Farmer McGregor could not have fisted much more than a clutching hand into the well-made burrow of the Rabbit Family.

Pikas, relatives of rabbits, dig burrows, and prepare for winter by stealing hay, drying it in layers and storing it. Japanese pikas burrow under the snow and spend the winter eating roots of larch plantings.

Other animals live in ready-made holes. Weasels dive into rodent holes, eat their prey, line the holes with the victim's fur, and use the holes as home. Snakes use holes and tunnels for hunting and hibernating.



Burrowing owls take up residence in prairie dog holes. Grasshopper mice use abandoned burrows, as do rats. Most animals, in fact, survive by being opportunists, using other animals' living quarters for food as necessity arises.

True burrowers dig dens and tunnel systems. They have a long history; for example, thirteen million years ago a two-foot-long, horned, burrowing rodent *Epigaulus* lived in North America. Most burrowers are rodents, although the best burrower of all, the mole, is an insectivore. Rodents all have sharp front teeth which keep on growing all their lives; they must gnaw on hard objects to wear down these little chisels, and so seem ever-busy nibbling on nuts, seeds, plants, insects, and even other rodents. There are plenty of rodents to fit all available ecological niches: thirty-five families with three hundred-and-fifty-two genera. Many are considered pests. Rats, for instance, destroy about two hundred million dollars worth of produce each year. Other rodents may not destroy on such a grand scale, but they do nibble and dig away at people's property and gardens with abandon.

Rodents mostly run into trouble when they run into people. Kangaroo rats dig tunnel systems in the desert, keeping cool in their home-made air-conditioning, and not bothering people. Woodchucks, one of the largest rodents, also called groundhogs, are a kind of national symbol because they are supposed to come out of their burrows and look for their shadows on February first of each year, to herald an early or a late spring; yet they do like plants, including alfalfa, clover, and vegetables, and thus are considered pests when living close to people. Hamsters, which are not native to the United States and live here only as pets, are known to be prodigious burrowers in their native Europe and Near East, and even bigger pest-hoarders: up to one hundred pounds of grain have been found in burrows of some European hamsters. Yet the ancestor-family of the pet golden hamsters now in the United States came from a family found a few decades ago minding its own business in a desert burrow in Syria.

Aside from mice and rats, the squirrel family accounts for the largest number of rodents that have run-ins with people. There are three hundred kinds of squirrels (the name comes from a Greek word meaning "shadow tail"), divided into tree squirrels and ground squirrels.

Prairie dogs, one of the ground squirrels, are among the most interesting and resourceful and now are among the most endangered of the burrowers. Once, five bill-

ion of them occupied prairie dog villages covering hundreds of miles on the plains of the Midwest, from Canada to Mexico and west into Arizona. One prairie dog town in Texas of more than twenty-five thousand acres was home to four hundred million prairie dogs, eating grass that would have fed a million-and-a-half head of cattle.

Prairie dogs dig tunnels down for about twelve feet, where they dig out a number of rooms for sleeping and food storage. At the entrance to the burrow they pile up a mound of earth to keep out water; deep holes and tunnels retain enough oxygen to save the animals from prairie fires, and an extra burrow near the top of their tunnel saves them from drowning should a torrent of rain get past the mound at the tunnel entrance. They work on their mounds continually, pushing dirt around with their noses.

Members of the same colony do not appear to compete for food or living space; they get along well and "kiss" each other when they meet by pressing muzzles together, apparently to establish community identity, since strangers are chased away. When burrows become crowded, some of the residents move to the edges of the prairie dog town to make fresh burrows, in the suburbs as it were, so their central city is never crowded.

Coronado reported on the vast numbers of prairie dogs seen in his explorations during the sixteenth century. Prairie dog populations were kept in check by natural predators such as wolves, coyotes, black-footed ferrets, rattlesnakes, and burrowing owls. During the westward movement, the balance of nature was tipped in favor of the prairie dogs by the very agents which were soon to attempt their extermination. As the new Americans moved west, they tried to exterminate the predators endangering them or their livestock, and, as a result, the prairie dogs thrived even more than usual.

The Chisholm Trail, by which Texas ranchers drove their herds to the Kansas railway, was surrounded by extensive prairie dog villages. The prairie dogs continued eating their usual grasses, becoming competitors with the cattle; the cattle stepped into prairie dog holes and broke their legs. The war was on.

Farmers and cattlemen poisoned or gassed the prairie dog villages at such a rate that the black-tailed prairie dog (*Cynomys ludovicianus*) is said to be extinct in Arizona, very rare in unprotected areas, and doing fairly well only in a few national parks and state reserves. The black-footed ferret and the Western burrowing owl, dependent on prairie dog villages for food and shelter, have also become rare. The white-

tailed prairie dog (*C. leucurus*), which inhabits the foothills of the Rocky Mountains, is also becoming rare.

California has neither the problem nor the pleasure of a prairie dog population. Instead, California has a large population of other ground squirrels, gophers, and moles. These are the most common burrowing pests of Southern California.

The California ground squirrel (*Citellus beecheyi*) digs tunnels as far as one hundred feet, with twenty entrances; their holes can perforate irrigation ditches; they dig up seeds of corn, melons, and soybeans, and climb trees to take fruits and nuts. Farmers put metal cylinders around the tree trunks to protect trees from ground squirrels as well as from the ever-adaptable rat. At one time there was an annual twenty-million-dollar loss to California agriculture because of the lovely but ruinous ground squirrel, which not only takes away crops but gives back tularemia and bubonic plague. Ground squirrels abound in the hills and along the coast, where they tunnel about in the sandy soil of beach house gardens.

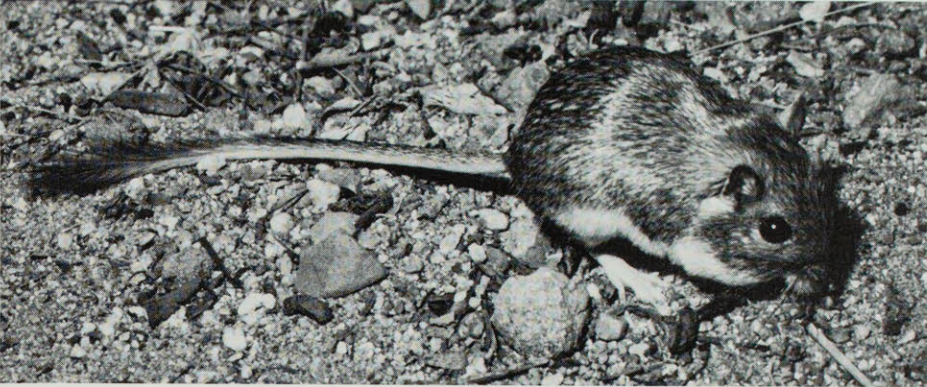
Gophers, rodents of the family Geomyidae, range over most of the United States; Minnesota has been known as the Gopher State. Pocket gophers are the most common Southern California garden pests. They have sleek gray, brown, or dark brown bodies about a foot long; the pockets are fur-lined pouches on the outside of their cheeks in which they store food and which can be turned inside out to be emptied or cleaned. Special muscles then pull pouches back in. Gopher tails are hairless, with a highly developed sense of touch, being used to feel the gopher's way when it backs up in a tunnel.

Digging with claws and teeth, gophers make tunnels hundreds of feet long with various chambers and escape routes, resulting in a number of holes in one's garden, all connected to the underground network of perhaps just one gopher. They are solitary animals except at breeding time, keeping other gophers out of their complex burrows. It is said that the Indians put roped gophers into burrows so that the burrow owner would fight; the Indians would pull both rodents out, kill one for meat and fur, and put the survivor into the next gopher hole to fight again.

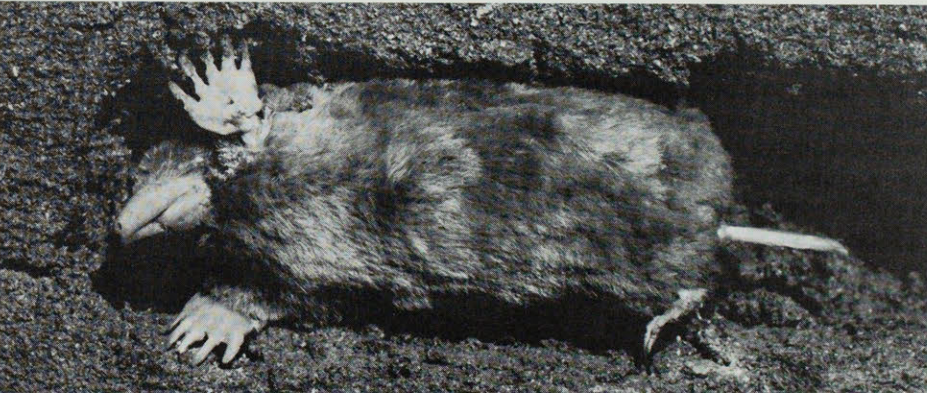
While digging, gophers come upon roots and bulbs which they either eat on the spot or store in their dens. As they move along they push extra dirt out of their holes by shovelling with their flat heads and strong arms. When they do come up to ground level, which is rarely (only the mole spends more time underground), they eat buds, vegetables, grasses, plants, and nuts, stor-



San Diego Pocket Mouse *Perognathus fallax*



Desert Pocket Mouse *Perognathus penicillatus*



Mole



Antelope Ground Squirrel
Citellus leucurus

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Photos by Gretchen Sibley



Prairie Dog, *Cynomys leudovicianus*

ing some in their cheek pockets to eat later. They empty their pockets by pushing forward on their cheeks with their front paws until the pockets are flat. Warm nights seem to attract gophers to the surface. Like many animals that live underground most of the time, their eyesight is poor, and they have been known to fall into swimming pools while searching a garden for some special delicacy.

Moles are insectivores belonging to the family Talpidae. They are oval-shaped animals that can fit in your palm. The fur of some is like gray or black velvet, a highly-prized but expensive fur, not surprising when one considers how many moleskins are needed for a single piece of clothing.

Moles spend almost all their lives underground. Their excellent hearing and sense of smell make up for their terrible eyesight and enable them to locate worms and insects which they can eat without ever laying eyes on them. Strong forelegs and large, broad claws act as shovels to help moles tunnel a good fifteen feet an hour. Moles work so hard they can eat their weight in food every twenty-four hours. Some mole tunnels have been found stored up with up to one thousand earthworms paralyzed by the mole's well-placed bite. Moles also eat millipedes, slugs, snails, young frogs, and even tiny mice. This isn't all bad for a garden, except for the loss of valuable earth worms. Moles are disliked mainly because of the unsightly ridges they create in a well-manicured lawn and because of the damage to plants they unwittingly cause while digging.

Moles dig tunnels down a few feet to make nesting chambers which they line with leaves and grass. From this central home they dig storage chambers and begin networks of tunnels a few inches under the ground, which are really their hunting runs. Although they do not want to eat the garden's roots and bulbs, they follow Teddy Roosevelt's advice, "Not over, not around, but *through*," chomping and nibbling their way through any obstacle as they tunnel in search of food. Each tunnel system is usually occupied by only one mole, except at breeding time, after which three or four babies are born in April or May.

There are several kinds of moles in the United States. The Eastern star-nosed mole is most noticed because of the twenty-two fleshy tentacles wiggling around its nose. The mole common to California is the Townsend Mole, the largest and most velvety of the family.

The Underground is an industrious lot. If only they could understand human as well as animal territoriality! The National Wildlife Federation suggests, in *Gardening With*

Wildlife, that those so inclined can enjoy coexisting with some animals considered pests, chipmunks and squirrels, for instance, by creating pleasant habitats for them in parts of a garden, and, perhaps more to the point, by changing one's garden preferences to the more natural, wilder kind of garden.

War has been declared on the Underground, however, by most gardeners using an amazing variety of weapons. Discussion of these seems out of place in a Natural History magazine, but some natural remedies should be of interest.

Mice. They run along in mole tunnels to find roots and bulbs. They make runs through the grass to their holes, eating grass on the way and leaving debris as they go. They gnaw at the base of plants. Put mothballs down their holes (they will leave because they don't like the smell.) Keep bulbs in wire baskets. Field mice feed on trunks of trees, not on roots. They build nests around tree trunks. Leave three feet between tree trunks and the surrounding mulch, and put wire cylinders around the trunks. Pine mice gnaw the bark higher up, and scoop out buds. Dig soil away from tree trunks and fill the resulting cavity with cinders, which are too sharp for the mice to run over.

Rats. Rats eat almost anything, including parts of gardens. They live under leaves, in burrows, under ivy, and in the skirts of palm trees. Plant wild mint; rats don't like the smell. Get rid of rubbish heaps. Get a cat; one rat in the Encino hills jumps into the swimming pool to avoid the family cat, and swims to the other side, coming up only once for air.

Rabbits. Put chicken wire three feet high and two inches under the soil around favorite plants. Scatter mothballs. Use epsom salts spray on the plants.

The True Burrowers: Ground squirrels, gophers, and moles. Various types of traps are available. The Agricultural Commission Office of Los Angeles County sells traps, as do many hardware stores. Live traps can be homemade, purchased at some pet shops, through agencies advertised in wildlife and conservation magazines, and through the Sears Roebuck catalogue. Sears does not sell any traps designed to kill. The Sears Live Trap comes in three sizes, from chipmunk to rabbit to raccoon size. Put bait on the tray in the middle, leave the door (or doors, on the larger model) *up*. When the animal touches the tray, the door slams shut. Put a small water container and some nesting material in the live trap, especially if you are not going to check it for a day. Wear gloves when setting the trap so that no alarming

human smell lingers on. Do not touch or try to pick up any wild animal you trap, because it will be frightened and might bite, perhaps passing on a variety of diseases. Let the animal go in a wild area, near water if possible.

One interesting remedy for burrowing pests was brought to the author's attention by docent friends at the Los Angeles Zoo. It is psychological warfare. Bury a soft drink bottle in the earth right by the hole so that one-half inch is showing above the soil. When the wind blows, the bottle will emit a weird "Whooooooooo," which will frighten the animal away from its haunted house. Or, put a record player or transistor by the hole and play hard-rock music at top volume. That should do it.

Some Old Remedies. Moles, which are common throughout the world, have been a special problem ever since Biblical times (Leviticus 11:30 lists them among the unclean "creeping things"). In seventeenth-century England, there were many and varied remedies against moles. Mole catchers were employed, on a cash basis, for twelpence for a dozen "olde moles," sixpence a dozen for young moles. It was more expensive to employ a catcher to snare a single mole. In 1628 Henry Best, a Yorkshire farmer, paid John Pearson thirteen-and-one-half-pence for a dozen old moles, but only sixpence for two dozen young ones. Water was poured in holes, although Sir Thomas Hanmer wrote that this was ineffective even with boiling or poisoned water. Adam Speed, a Puritan who wrote *Adam Out of Eden*, recommended red herrings burned on molehills, or pieces of garlics and leeks pushed into runways so that moles would rush to the surface and be caught. Thorny branches, stuck into runways "with vigor and astute placement" were also recommended. Adam Speed speaks to us from centuries past, advising us to make "our own tryal, belief or doubt."

All these methods, diverse as they may be, have only moderate or temporary success. The National Wildlife Federation reminds us that "the soil is a subterranean highway." If we block the highway with any of a hundred modern methods from poison to gassing to natural remedies, the Underground will find a detour, world without end.

Kilbee Brittain knows about these animals, personally, only from Peter Rabbit, Alice in Wonderland, and The Wind in the Willows. To make up for this blind spot she has researched this article by reading books, interviewing too many exterminators, and talking with docent friends at the Los Angeles Zoo.



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THE APPLE DOLL,

A Native American Art

by Mildred Emboden

One drawer is filled with heads and another with little hands and feet. People think that this is a peculiar craft, but they seem to delight in "the little people" that fill my house; all of the apple people seem to be a part of my family. Without really intending it, neighbors, relatives and friends are eventually immortalized in apple. Even my husband and I were the subjects for one of my apple tableaux — American Gothic. I have bums (we have some in the family), hobos, an organ-grinder and his monkey, a 'schoolmarm', a little old lady frightened by a mouse, and a few fictional figures like Rip Van Winkle. No two figures are alike; each has his or her own personality and dress.

When I was a small girl in Rum Village (a true village, in those days made up of Hungarian gypsies and immigrant Swedes), I used to learn a host of things from the old gypsy ladies: how to remove warts, how to

prevent dogs from straying, how to keep colds and diseases away (those dreadful little bags of asafoetida and garlic), and a number of their crafts. Most wondrous to me was the apple doll. I had long believed it to be an old gypsy tradition, but found out later that it was a craft practiced by the American Indians. The Seneca tribe was well-known for one smiling apple doll called "Loose Foot." He was the Spirit who made the dreams of small children come true. Every Indian squaw among the Senecas was a craftswoman capable of rendering her own version of "Loose Foot." Thus the doll was a magical creature that a child might wish upon. This is not unlike gypsy lore surrounding such dolls.

In order to make really fine apple dolls one must have the heart of a collector. Every little bead or scrap of fabric has some potential in it. Bits of wire, dried weeds,

weathered boards. All can be used. The tiny pictures on old postage stamps may grace the wall of one of these dolls' rooms; tiny seeds and grains of rice may become eyes and teeth; neglect nothing. More important, keep an eye open for good medium-sized apples without blemishes or bruises. Golden Delicious apples seem to be ideal for this purpose, but every apple imparts a somewhat different character.

The process begins with paring the apple and smoothing it with a knife. Keep in mind that at this point the apple will shrink to about half its size when dried. Approach it like a sculptor, first cutting away the areas around the nose. Carve eyelids, cheekbones, ears, and lips, leaving spaces in the mouth and eyes for the insertion of teeth and eyeballs (usually rice and beads). At this point dip the apple into lemon juice to keep it from turning brown, although it's

Rip Van Winkle discovered



Nothing like a good book



At my window



A Chinaman



The Organ Grinder



nice to have some little brown faces in your collection as well. (Certainly the Senecas didn't use lemon juice!) Run a fine wire through the apple core and allow it to hang in a warm dry place for about a week. My kitchen has heads everywhere. You must do the apple hands and feet at the same time; these are more delicate to cut and are very easily broken. The material, initially so terribly fragile, becomes quite durable. By the end of one week you will find the apple is elastic, and during this period can still be worked. If more carving is done it must be done at this time. Ears are a real problem area; keep them level with the eyes.

After a second week of hanging the features may still be altered. The apple has begun to shrivel and takes on more character at this time. Unless you live in an exceptionally dry area, it is still too early to implant eyes and teeth; it will be two more weeks before your grotesque collection of tiny heads will be ready for these touches. At that time you may add moustaches, hair, eyebrows, and beards. I sometimes use minute particles of human hair, inserting these one at a time. They will dry in place and be as natural-looking as most professional hair transplants. If you want to avoid the monotony of this experience, use glue and twine. Twine takes dye very well and is easily moulded into head hair or beards. Remember to have a goal in mind when executing each head or it will lack character. That seems to be the problem with the quasi-commercial production of apple dolls; they all look alike. After applying hair or twine, lipstick or paint can be added to give the proper coloring to the face. Then a transparent white varnish either sprayed or painted over the head, hands and feet will preserve all of this.

A pipe cleaner may be drawn through the head before it is dry and pulled down to begin the formation of a body for the little creature. More twisted pipe cleaners can be used to establish the body's frame which is then padded with cotton batting and pulled into shape with old nylon hosiery. You may make the little body any proportion you desire, but keep it in accord with the character of the face.

Dressing an apple doll is a painstaking process, for even the stitches must be done in miniature and by hand. Old fabrics that have been washed many times lend themselves more than new stiff material. Besides, they look finer. Bits of denim, gingham, tiny print patterns, little pieces of embroidery — all are useful. There is no point in detailing the face if you will not spend as much time on the apparel for your dolls. This is a time to make pets for them

too: chickens, monkeys, dogs and cats. I have always been as intrigued by the things with which a person surrounds himself as I am with the person himself. Every detail is important. All of my dolls have proper undergarments. No one sees them, but the satisfaction is mine. My husband helps with the environments by sawing out scraps of wood to make a barn, a table, or a classroom. I do the painting of these micro-environments, which are usually rustic. I have created exotic figures, like my tiny Chinaman who smokes a pipe and my Italian organ grinder with his monkey. Mostly I prefer to work with people and scenes from around me, all of which are rather rural.

I look about this house (which I remember as a child, for we knew it as the "haunted house"), never dreaming that I'd be living here with such a large family. I really don't like to sell the dolls or give them away. It's much like losing a friend with whom you have worked and spent a part of your life. My husband finds it all a bit strange (which probably accounts for his spending so much time fishing), but he never objects, and can sometimes be coerced into helping.

I've been asked if these apple dolls could be given to children. Of course they can. The head is quite durable, becoming harder with time, but the fingers are likely to be broken if the dolls are treated as toys. When you have spent so much time working on the dolls you don't like to think of their possible destruction. And so that offers another excuse not to part with them. In some mysterious way each member of the collection peoples my life, enriches it, crowding my mind with memories of their creation, their growth into the "little people." □

Mildred Emboden lives with her husband in an early American clapboard house on Eagle Lake in Michigan. She describes herself as half gypsy and half witch; her son, who is research associate with this Museum, concurs. She has exhibited her work in several museums of folk art.



A Fisherman



Granny



Woman



Apple Annie



A Hobo





Some flowers for
your child, Sir?

A fear of mice



My husband and I
in "American Gothic"

Schoolroom



ETHNIC ARTS SHOP

All antiquities have been cleared for export by the country of origin. Background and authenticity guaranteed.



Bamboo Lacquerware from The Peoples Republic of China.

Top Center Eagle \$350.
Dragonfly Box \$100.
Owl \$ 23.
Goose \$ 19.
Horn Bill \$105.

other Vases and Animals from
\$5.00 to \$325.00

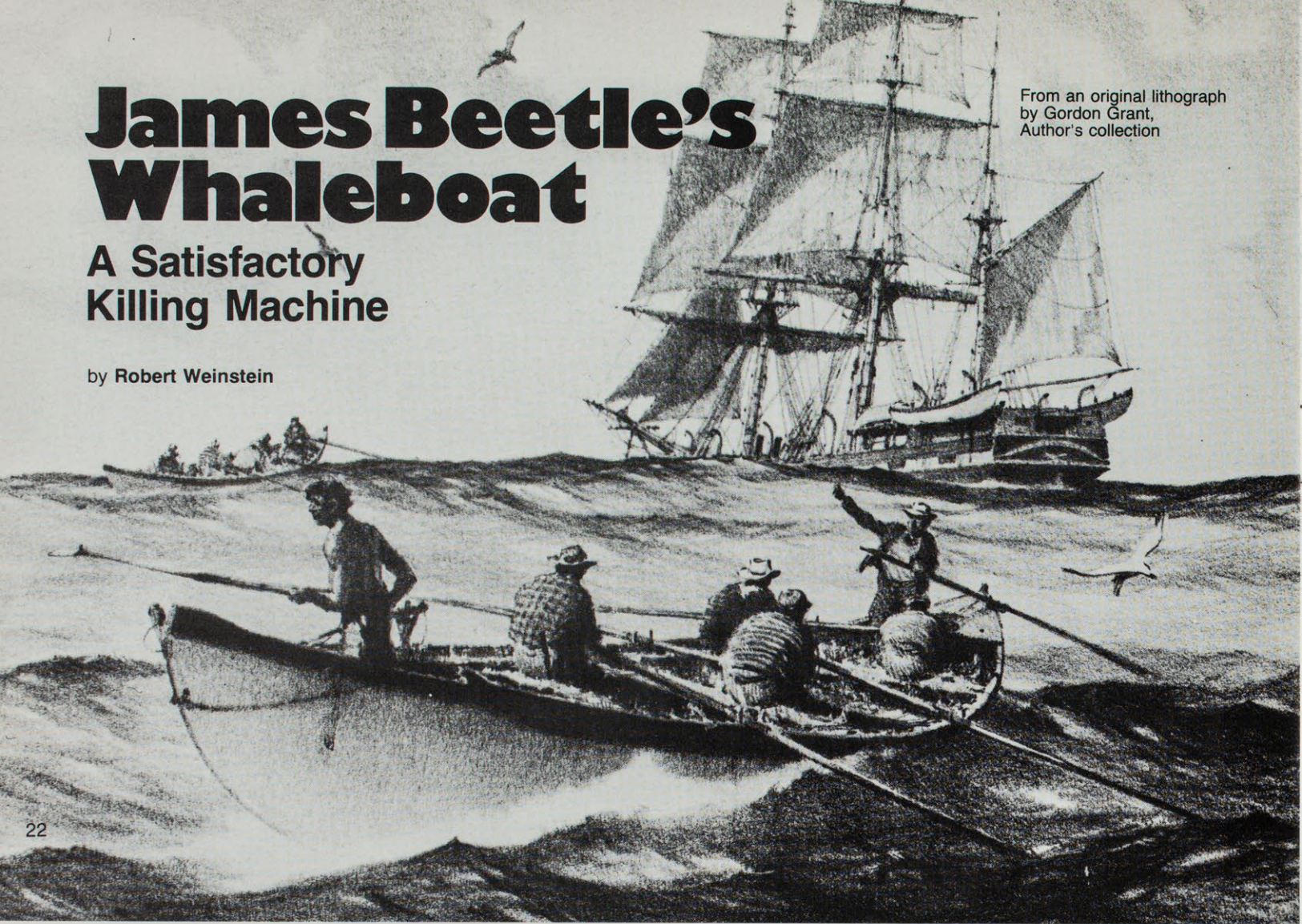
These Artifacts were very Popular
in the Victorian World.

James Beetle's Whaleboat

A Satisfactory Killing Machine

by Robert Weinstein

From an original lithograph
by Gordon Grant,
Author's collection



22

It was a poor day for dying. Nothing to be seen suggested that death was in the air near by, just waiting. It was no more than an ordinary windless day in the Indian Ocean in an area whalers called The Crozettes, the sea calm and glassy, rolling in uneasy swells under a blazing sun. By now, in the waning afternoon, it had turned the sky into a sullen, brassy furnace.

There was no relief from the heat. It was searing, hot enough so the six weary whalers slumped over their heavy oars sweated too much. They had rowed their heavy whaleboat for hours in pursuit of whales and now they were tired and uncomfortable. They were angry and dejected. Alone and dispirited, at least for that moment, they hated their bloody work.

Resting on their oars, not moving, the boat seemed anchored to one spot. Nothing moved. Even the restless heave of the sea was heavy and labored as though exhausted by its own efforts. Only a slight tugging at the line that snaked into the sea, downwards from the bow, suggested life. Below in the cool depths firmly secured to this tugging line lay a harpooned sperm

whale. The whalers had found their quarry and were fast to him. Death was coming closer.

Three hundred feet below, this angry and frightened whale thrashed about in panic. A still quivering steel arrow, a harpoon, was painfully imbedded in his flank very near his great flukes. A stout rope attached to the harpoon led out of sight in the watery dark up to the bobbing boat with the whale's tormentors. Somewhat apprehensively they waited for him to come up. He needed air, desperately; they knew that. They knew he would come up any minute now, he had to. Hot, anxious and frightened, the men fretted, each one trying his best to guess when *exactly* in the next few minutes the whale would break the surface dramatically and frighteningly, hurtling upwards in plumes of leaping spray. They had to know *where* he would emerge as much as *when*. The breaching of a struck whale was dangerous, the tension of waiting for him hard indeed.

The quarry below had a different problem, a very serious one. After being struck by the harpoon the whale had sounded,

going down like an express train to three hundred feet where it had always been safe. He had stayed down for over an hour now and his air was giving out. He had to be careful with the air he had, it was getting very hard to breathe. Only two bad choices were left. Get air for his rasping lungs or dislodge the maddening harpoon in his back, somehow, anyway, in the few tortured minutes left before the remaining air in his lungs gave out. Then he *had* to come up for air, once more to face six puny men in a wooden boat, his murderous enemies, a confrontation that almost always ended in his death.

Why? What was man's advantage in this apparently unequal contest, a death duel between a peaceful, sixty-foot sperm whale weighing sixty tons and six men in a twenty-eight foot cedar boat determined to kill him with cleverly fashioned gear that could do the job?

The Beetle whaleboat, designed and built in New Bedford, Massachusetts, was the best part of that advantage. It proved to be a highly successful killing machine. The newly-finished Museum model of such a

boat shown here can demonstrate why, clearly and in detail.

Before petroleum had been discovered, whale hunting in the mid-nineteenth century was carried on for one main purpose, to secure whale oil. Sailing ships carried whalers and whaleboats such as these to the whaling grounds, at sea, where whales were normally found. Not any kind of whale would serve their needs, only one, for their quarry was sperm whales.

Leaving New Bedford the ships sailed east to the Cape Verde Islands and to the Azores to secure whalers. As island-living people most of them were experienced in handling boats similar to the whaleboats. The whaling master's single job was to kill whales from small boats, not, like cargo ships, to make fast passages between ports. They required skilled sailors less and experienced boatmen more. Actually, the whaleships stayed at sea as long as it took them to fill their holds with barreled whale oil. Of all those who went to sea, the whalers, together with fishermen, were the only seafarers who harvested the wealth *in* the sea. They were a form of sea-going farmer.

Leaving the Western Islands each new hand was trained in his boat and eventually assigned a particular seat, called a thwart by sailors, as shown in the model. The boatsteerer who doubled as harpooner used (A) exclusively. Next the bow oarsman (B) followed by the midship oarsman (C), in turn the next the tub oarsman (D), the stroke oarsman (E) and finally the whaleboat's master, the Mate, standing to his work, used the twenty-three foot long steering oar (F). The oarsmen were staggered, each sitting on one side or the other of the boat but rowing from opposite sides, making for a balanced boat more easily able to be steered properly.

When at sea, cruising on the grounds, every whaler spent some time aloft, high in the ships rigging searching for whales. A telltale spout would mark their target, a bushy plume of mist targeting an exhaling whale at rest on the surface of the sea.

Once a whale was sighted, the men leaped to lower their whaleboats from where they rested on wooden davits and supporting cranes. Dead quiet was the order of the day for the whale's hearing was uncommonly acute and noise would quickly scare him off. Whalers spoke of this as a "gallied" whale, a mistake to avoid at all costs.

Heavy half-barrels called tubs, each one filled with carefully coiled three-quarter-inch manila whale line (37), (39) were quickly placed in the boats. To have kept

such dead weight in the boats permanently would have strained them too severely. Once the boat was in the water, the boat falls cast off from their hoisting eyes (6), (55) the mast and sail were raised by all hands, placed through the mast hinge (19), commonly called "the pulpit," lowered into the mast step (18) and secured. The centerboard (30) was lowered into the sea and once the sail was spread to the wind and sheeted home, the hunt was under way.

Trained to function without spoken commands, for quiet was paramount, the men in the boat prepared her and themselves for the unequal combat they knew was imminent. The eighteen hundred feet of whale line in the two tubs were made fast, one to the other, and one end of the line taken all the way aft to the protruding loggerhead (54) where two turns of the line were taken around it. It was then led forward, under the kicking strap (8), rigged to hold the jumping line once it was attached to a wounded whale and thence out through the chock in the bow of the boat. The line was kept from jumping out of this chock by the wooden chock pin (1), inserted through holes in each chock.

The whaleline was brought back into the bow of the boat where some twenty-five feet of it was coiled for free running out and called the "box warp" (4). From there it was bent with two half-hitches to a harpoon (13) resting in its crotch (12) on the boat's starboard rail. The murderous lances, the killing irons, were each checked, one rack to port and the other to starboard (14), (15), their protective sheaths removed, the lances readied for the bloody work to come.

Superintending this work, the harpooner quietly signaled to the Mate, aft at the steering oar, that he was ready. Having sailed as close to the whale as was deemed prudent it was now time to take in sail and start rowing, heavy work universally disliked by whalers. It was especially annoying to the harpooner, who after a long tiring row had to stand up and in calm control of himself, dart his harpoon into the whale. Now each man sitting at his appointed place carefully and noiselessly threaded his heavy oar through the appropriate oarlock, (16), (23), (38), (40), (46). Each oarlock had been wrapped with layers of old rope, canvas and covered over all with leather to muffle the creaking of the heavy oars. The oar looms where they met the oarlocks were likewise deadened, for noise at this juncture was critical. They rowed steadily until the Mate decided that oars must give way to paddles (34) for they could be dipped into the sea with great care and were quieter. Stealth and silence had become all-important.

Stealing up on the drifting whale, approaching him from his rear on the port (left) side, the whaleboat crept nearer, the water alongside gurgling, the Mate calming the tense paddlers with soft encouragement. Only the Mate could see the great beast they were approaching, not even the harpooner, for all the men sat facing aft as they rowed or paddled. Any possibility of distracting or frightening the rowers was thus avoided. A moment of frightening truth was but seconds away. As they literally crept forward, just ahead of the whale's great flukes, the boat almost touching the whale, (the whalers called that moment, "wood to blackskin") the Mate suddenly shattered the deathly stillness shouting to the harpooner, "Stand up now and give it to him. . . now I say, up to the hitches!" He was referring to the two half-hitches that secured the whaleline to the harpoon.

Standing up, turning to face the boat's bow and the whale he was seeing for the first time, seizing the harpoon from its crotch in a swift motion, placing his left thigh simultaneously into the clumsy cleat (9) to steady himself for the throw, the harpooner balanced his weapon in both hands and drove it into the flank of the whale below him as hard and as deeply as he could. At that very instant the world was shattered into a hell of roaring sound, white water and screaming whaleline. The heart-stopping moment whalers dreaded most of all had come at last.

Wounded and frightened the whale reacted with savage speed. Lifting his great flukes out of the water, high over the twisting body already in frenzied motion, he smashed them down into the sea hoping to crush whatever was threatening him, an instinct for self-preservation that could not be stayed. It was up to the whalers to be instantly out from under the death thrashing high over their heads. "Out oars, stern all," roared the Mate to five frightened whalers. Bending all of his weight on the great ash steering oar (F) the Mate shouted instructions at the top of his voice, urging the straining men into faster action. Only speed and decision stood between them and death. The cunning skill of the whaleboat's designer was now put to its most severe test. Would it maneuver as it *must* if its occupants were to live another minute? Impelled by the Mate's rapidly sculling oar the twenty-eight foot boat sped backwards out of the reach of the killing flukes, turning away from the thrashing body to guaranteed safety for all. A "stove boat" smashed to tinder, injured or dead whalers were the expected result of a clumsy performance now.

Almost at the same instant the boat's bow

Beetle Whaleboat, A Highly Successful Killing Machine

Chock Pin (Wood pin to keep harpoon line in place)

"Box warp" or "Stay line" (part of main harpoon line)

Forward hoisting ring or shackle

Kicking Strap (helps keep harpoon line down)

Iron (harpoon) in ready position

Forward hatchet

Crotch

Starboard rack for Lances

Harpooner's oarlock

Boat warp (extra line)

Lances

Bailing bucket

Centerboard (used when sailing)

Spare line tub

Water Keg

Mast & sail

Stroke oarsman

Piggin (for wetting hot line on loggerhead)

Helmsman

Aft hatchet

Door or storage area — (emergency provisions)

Holder for mast and sail

Loggerhead

Aft boat knife

Lions tongue (Loggerhead brace)

24

25

Drogue (sea anchor)

Midship oarsman

Lantern keg

Bow oarsman

Mast hinge

Port rack for irons (harpoons)

Mast step (brace for mast)

Harpooner

Clumsy cleat (notch for harpooner's knee)

Sperm whale tooth (Good luck charm)

Slot to straighten kinks in harpoons and lances.

The model whale boat illustrated in this article was acquired by the Natural History Museum of Los Angeles County's Director, Dr. Giles Mead, at an auction at MGM Studios and donated by Dr. Mead for use by the Lending Service. At MGM the whaleboat hull was used in miniature filming for scenes in a number of major motion pictures. Robert Weinstein identified the oars, lances, cleats, etc., typically used in whale hunting and Joe Cocke has crafted these devices and accoutrements and fitted the hull with them in proper place for normal use as described by Mr. Weinstein. This properly fitted-out whaleboat now becomes part of the Museum's Lending Service for use by teachers and others to show the actual use of the whaleboat. A nearly lost craft is thus described and preserved for edification of future generations.

Main line tub

Tub oarsman

Boat spade

Boat hook

Rudder

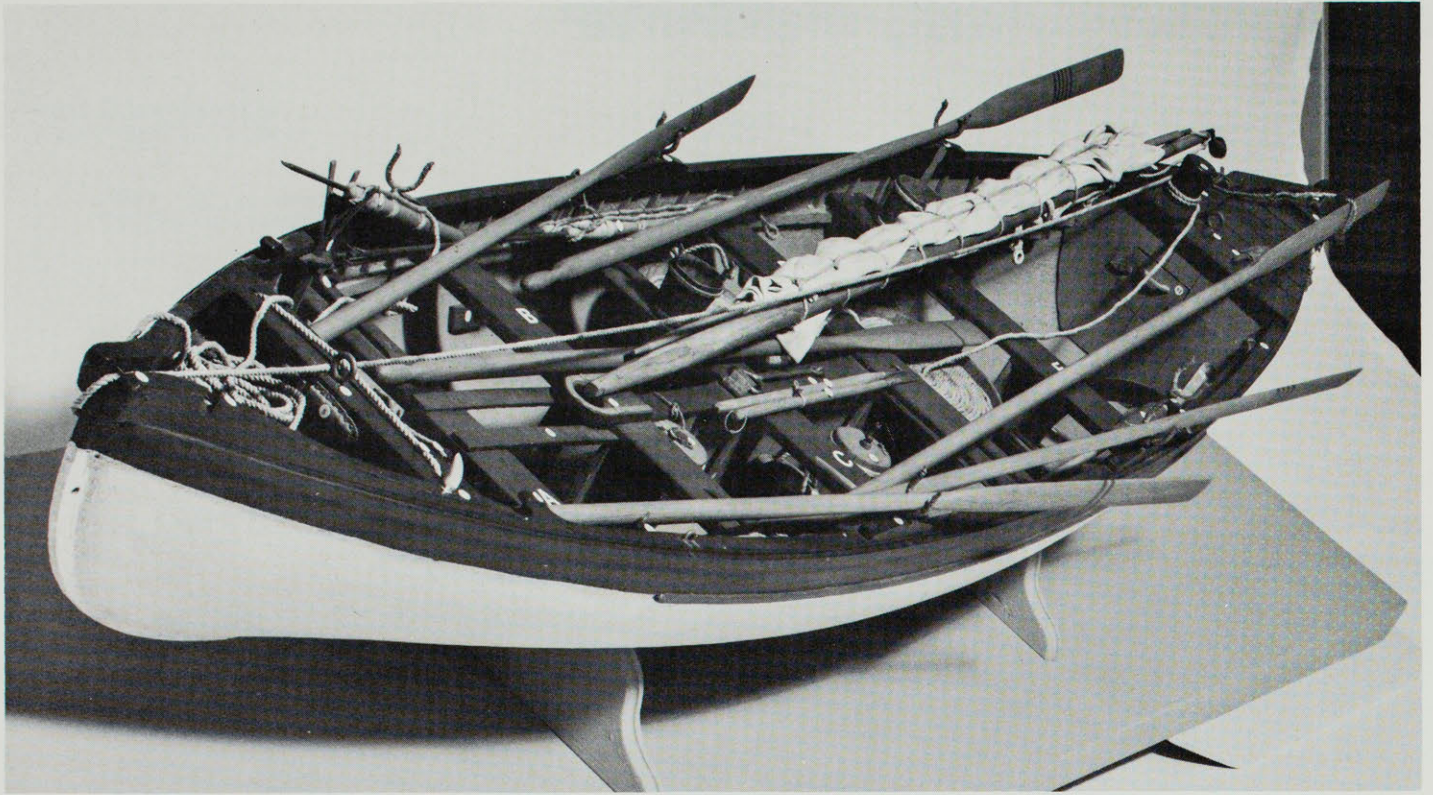
Aft hoisting ring or shackle

Compass

Helmsman's leg brace

Tiller (used with rudder when sailing)

Waif (flag for marking dead whales)



was dragged under water by the fleeing whale racing out to sea to be free once more, filling the bow with white water, wetting every whaler with cascading sheets of flying spray. The spray-hidden bow bobbed up and down, in and out of the pounding sea like an apple in a tub. The whalers were off on a famed "Nantucket Sleigh Ride." "Bail for your lives," was the hoarse order, "Bail, boys, bail, I say," shouted the jubilant Mate; he was fast to his whale. Everything in the whaleboat that could double now as a bailer was used, the bailing bucket (28), the piggin (42), the drogue (35), any handy whaler's hat that would hold even a cup of water. They often stood in their boat ankle deep in sea water, bailing to stay afloat in the mad, careening rush of the running whale.

Of equal danger to all at that fateful moment was the running whale line, jerked into a bar-taut line of quivering manila by the plunging whale far out ahead. The spinning line cut into the oak loggerhead, smoking and scorching the tortured wood until it sang and shrieked in apparent agony. Any careless whaler heedless of the racing line might pay for his stupidity with a lost hand, a mangled arm, a severed leg or even his life. More than one such whaler has been jerked out of the boat by the racing line and lost in a welter of foam forever. "Stand clear of the line" was always shouted as a matter of course although it was a poor whaler that needed to be told more than once.

The manila line ran out of each tub in leaping turns standing almost upright in the air. There was no stopping it just as there was no stopping the maddened whale, at least not until he tired and slowed down or stopped himself, exhausted at last. He was not dead then or even critically wounded. He was only trying to rid himself of the "thing" he knew instinctively meant him great harm. Sometimes he sounded instead of running, and down there, lurking in the sea's depths, he represented trouble to his captors when he decided to burst out of the sea, "breaching" in terrifying anger.

The whale-killer's job, once the whale was exhausted and at rest on the surface, was to get near enough to kill him by stabbing him in the lungs, again and again, with a sharp steel lance. The manner of doing it was either by rowing to him once more or pulling themselves to him by the line stretching between their boat and the harpoon buried in his aching side. That was the real function of the harpoon, it was never intended to kill him. The Mate started this tiring game with the oft-heard exhortation, "Pull boys, pull, I tell you," and then the inevitable, "Let it out, boys, give *him* a bit of

line." And so it went, pulling and heaving endlessly in the bobbing boat. Standing up, facing the whaleboat's bow this time, each man forward of his thwart, the men pulled the wet line into the boat passing it through their spread legs, the mate recoiling the dripping line in the tubs. Eventually, they neared the tiring whale. It might have taken an hour or sometimes a full night, for once fastened to a whale the game was played out to its bloody end, always.

Now the Mate and the harpooner changed stations in the whaleboat, the Mate coming forward to lance the whale, the harpooner going aft to steer the boat on its mission of death. Again the whaleboat crept forward, slowly under paddles, inching its way forward alongside the whale's blunt head, near the whale's lungs just under his gasping blowhole. Drawing even closer, almost there, the Mate, braced into the clumsy cleat, cautioned the men with a gesture to be quiet. The whale's heavy breathing, tired whistling gasps at this point, were eerily audible and all else was still.

Reaching his target the Mate picked up his lance in both hands, lifting it high over his head and plunging it into the softly hissing blowhole, churning it up and down vigorously to be sure he was lacerating the laboring lungs below him. Everyone was still, hushed, waiting for the first spurt of bloody foam that assured them of their quarry. Coming at last, a great fountain of air and blood spouted upward covering the Mate with blood. The whalers understood they

had killed their whale at last. It was over, murder had been done.

Floating "fin out", the dead whale was secured now with the whale line passed through a hole cut in his fluke by the boat spade (32). After the whaleship, off on their port bow, was informed of the dead whale by waving the signal flag in the boat, the waif (44), all that remained was to tow the dead carcass back to the ship, more heavy rowing. There it would be stripped of its blubber and rendered into oil.

The oily sea was still once more, the sun still high and blazing, the whalers no longer frightened, only more exhausted now than when they had first lowered for the chase. Their work was done and they returned exhilarated, for victory was theirs. Were it not for their remarkable whaleboat, and the ingenious killing gear it carried so handily, it would all have been impossible.

ROBERT WEINSTEIN, a *TERRA* regular, is a recognized maritime historian. He is a Research Associate at the Natural History Museum of Los Angeles County, and a Research Associate on Maritime History at the Bishop Museum in Honolulu, as well as a representative for the San Francisco Maritime Museum.

JOE CÖCKE is a Preparator in the Natural History Museum of Los Angeles County's Education Division Lending Service. As such, Mr. Cöcke prepares models and various artifacts for circulation by the Lending Service.

Joe Cöcke surveys the whaleboat model he made.



**Bergamotto,
the
Priceless
Citrus**



by William A. Emboden

Calabria is not one of the great tourist attractions of Italy, and yet for the botanist it holds a great fascination. This is the only area in the world that now produces the bergamot, a small citrus fruit whose essential oils are actually worth their weight in gold! Sicily, France, Africa . . . all have attempted the cultivation of this bizarre citrus, and all have failed.

In quest of the most elusive of all citrus trees, I left Rome on a night-train for Reggio Calabria, the final southern stop for all Italian trains other than the occasional locals. After grinding through tunnels and over treacherous mountain passes for most of the night I arrived in the small hours of the morning in Calabria. Most tourists had departed at San Giorgio for a trip to Sicily. Find-

ing myself quite alone and knowing little enough Italian I approached a watchman at the train station and asked to be directed to the *bergamoto*. Seeing that I made no impression I suggested *albero* which was interpreted as *albergo* and I was directed to the nearest hotel. Soon the station master joined in the discussion and I attempted the same thing. "Ah, yes, you wish the train from Calabria to Milano. From there you may easily reach Bergamo, it is just north-east of Milano." I was getting so much help that it was embarrassing to continually say "no." Finally a young man who had been on the train joined in the conversation. He puzzled over all of this until I explained that I was a botanist, and was not looking for a hotel, but a fruit tree." Oh, but you must go farther

south. You will not see those trees north of Catona." After some further inquiry I found that somewhere in the terraced hillsides above the Messina strait I would find many groves of bergamot and even a *stazione bergamoto*. Relying on the kindness of strangers, I made my way south along the seacoast to find this botanical enigma. The rocky calcareous terrain did not look as though it would support any agriculture other than the ubiquitous olive. A sea breeze kept the July heat from being unbearable. Only about an hour from the station by car a fragrance became detectable. The volatile oils from the leaves of the bergamot perfume the air and one knows that he has arrived.

It would be easy to be deceived into think-



ing that one had encountered a grove of oranges or lemons were it not for the perfume of the leaves — quite different from any other citrus. At first it would appear to be quite a large scale industry, but the total growing area of the bergamot is only seven thousand five hundred acres. The relatively thornless trees are vigorous in habit, upright, their crowns spreading with a profusion of unripe fruit in the upper branches. The leaves of the tree are long with a winged petiole and when crushed produce an incredible odor that would in itself rival most colognes. It is for reason of the oil that these few square miles exist. It is not the oil of the leaves, but that of the fruit rind that is so prized. The bitter pulp of the fruit becomes food for the local pigs (producing a pork of unusual quality). The fruits are either round or pear-shaped and emerge from a single blossom. When mature, the fruit is yellow and has a rind rich in fragrant oils. It is these oils that were first promoted by Johann Maria Farina in his *eau de cologne* in 1709. This Italian chemist marketed a fragrance that attracted the attention of Madame Pompadour and the French Court. Cologne was in reality developed in Cologne, Germany, by Farina's father-in-law, Paolo Feminis. He accomplished this in 1676, leaving the formula to his son-in-law, who made the fragrance world-famous. It was an essence that knew no rival and one that even today cannot be duplicated by modern chemistry.

As early as 1708 botanists had begun to recognize varieties with stable diagnostic features in both the fruit and the fragrance. Volckamer in 1708 recognized two different kinds, and Risso and Poiteau in 1818 described five varieties. *Citrus bergamia* Risso applies to all of the varieties. *Castagnaro* is a vigorous, upright tree bearing lightly and producing fruits that are pear-shaped to obovate with tough ribbed rinds. It is the leading variety for reason of the very high quality of the oil. *Feminello* produces spherical fruit with a smooth rind; it is probably a selection of *castagnaro*, and together these two varieties constitute most of the bergamot acreage. *Melarosa* is grown in a few areas away from the central site of production, and is distinguished by its almost flat fruit. *Picolla* is a small-fruited bergamot that has now all but disappeared. *Torulosa*, which is also called *striata*, has large, pear-shaped fruits with numerous dark ridges in the rind (which is rather thin); it has no commercial importance. The foliage and young shoots of these inferior varieties may be distilled to produce "petite grain oil" also used in perfumery, but decidedly inferior to the rind oil of *castagnaro* and *feminello*.

In October the bergamot is harvested, and workers — mostly women — spend their days rubbing the fruits against an iron grater, collecting the precious oil in a sponge. This practice has not changed since the eighteenth century. A worker can process about one thousand of these fruits a day, and from this less than half a pint of oil is extracted. Calabrian girls sing traditional songs associated with the bergamot harvest, songs that are heard nowhere else. Their hands become quite black in the process of grating. Mechanization is slowly making itself felt as the Ministry in Rome and the "Fruit Derivatives and Perfume Industry" are delving into this agricultural oddity. After all, the earnings of three million dollars (not lire) per year in foreign currencies make it the most important crop in Calabria. First it was *il Calabrese* (the Calabrian) that was to replace hand work. This peculiar mechanical grater rotates the fruit between its spiked discs and the oil trickles through a filter of wool into a cup. More often than not the machine is driven by a belt attached to the rear wheels of an old truck that has been hoisted up for this operation. Few of these are in use as they must be adjusted according to fruit size and often become clogged with pulp. The newest bit of machinery, *la pelatrice* (the skinner), grades and crushes the fruit and centrifugally separates the juice of the pulp from that of the rind. A marvel, it replaces in a day the labor of fifty Calabrian girls. Fifty girls are left without salaries to marvel at automation. The experimental station has ascertained the oil from *la pelatrice* to be superior to that produced by hand labor. Things look brighter now, for new terraces of bergamots are appearing, propagating stations are increasing the numbers of trees, and new farms are developing to the north. But will they produce the fine oil that is derived from the steppes on the sea-coast? That remains to be seen. The excellent clonal material from Calabria taken to Formosa, Japan, Sicily, the Ivory Coast and France has failed to produce an oil with a bouquet that will satisfy the perfume industry. Calabria will soon build her own perfume factory and market a product of the oil that will compete with some of the famous fragrances now on the market.

Of the four hundred tons of fruit produced each year, the Ministry of Commerce and Agriculture requires that the farmers sell all of the essence extracted to the *Consorzio del Bergamotto*. The raw essence will be distributed by the *Consorzio* at just under one hundred dollars an ounce, and there are markets throughout the world competing for this valuable oil. Like wines, the oils from different terraces and slopes all have

distinctive attributes, even occasionally a vintage oil is produced which will be given a special award. *Normale*, *Mediocre* and *Deteriorate* are the appellations given to the essence at marketing time (what a contrast in sentiment to the California appellations for olives, which seem to range from "Jumbo" to "Colossal" — who has ever heard of marketing a "Small" olive?). As with wines, the day of gathering, the season's rainfall (these are irrigated as well), the amount of sun, and soil composition all participate in determining quality.

It seems a curiosity that California has never had a bergamot experiment. At one time the University of California at Los Angeles grew a few plants in their groves in Westwood. As horticulture was phased out of this institution, a few trees and budwood were moved to University of California, Riverside where they now grow as a curiosity and a possible repository of *Citrus* genes for hybridization. It would seem that coastal California might provide the closest approximation to the Calabrian coast. A clay chalk soil, a sea breeze, irrigation, a warm summer and not too cool a winter are the requisites for this fruit tree. At this time fifteen family holdings and one collective farm in Calabria constitute the world's bergamot industry. Perhaps some pioneering Californian will discover a coastal site ideal for the bergamot and bring this unusual citrus industry to California.

Since this is unlikely in the very near future, you might rethink next fall's vacation and venture down to the toe of Italy's boot, into the hillsides of Calabria, and smell the fragrance of bergamot and listen to the peasant songs that will soon die, unrecorded, being replaced by the gentle "whirrr" of *la pelatrice* taking liquid gold from the world's least known, and one of its most valuable, fruits — the bergamot. □

William Emboden went to Sicily last summer to do research on a number of articles, of which this, on the bergamotto, is one.

★★

Craft Spectacular Two

An Exhibition of Americana Today

by Mary Alice Zeman

★★

An outsize Sunday-in-the-park?
A slice of Bicentennial nostalgia, evoking memories of the quilting bee — the village smithy — Betsy Ross?

A picnic — popcorn — hot dogs — a barbershop quartet blending heads and voices in "Sweet Adeline"?

A kaleidoscope of dextrous hands, busy at looms, forges, bobbins, drawing boards and potters' wheels?

CRAFT SPECTACULAR — TWO, coming to Exposition Park on June 13 as a gift to the Southland from the Natural History Museum of Los Angeles County's Educational Division, is all of these.

Primarily it is a gathering of top craftsmen of Los Angeles County whose folk artistry is a refreshing contrast to the current assemblyline scene.

Last year's CRAFT SPECTACULAR — ONE brought 12,000 spectators to Museum grounds infused with a color and activity seldom associated with such institutions. CRAFT SPECTACULAR — TWO has a vastly enlarged roster of arts and artisans.

Ed Johnson, cooper, is one of the newcomers. In a mass-production economy, hand-made barrels might rank as a lost art. But this endangered craft has a staunch ally in Ed, even though he admits the business isn't what it used to be.

"Cooperage — barrel-making — was a must in the old days when farmers stored just about everything in barrels," he says. "Flour, corn, molasses, cider, beer, salt meat, rum and gunpowder — you name it. Barrels held everything. Today, the wine industry is about the last big market."

As American as barrel-making is the art of scrimshaw which Joe Cocke practices. Bygone whalers on long, lonely trips scratched designs in whale teeth to start a craft which thrives today.

"With the protection of the whales, it is illegal to use the teeth any more," explains Joe, pointing to his diminutive nautical scenes etched in bone and ivory. If the materials have changed, the traditional de-

signs have not — ships in full sail, fish and, of course, the mighty mammal of the deep, Moby Dick himself.

Joe took up scrimshaw years ago, abandoned it, now is in action again and will be one of the craftsmen of this year's show.

What makes such craftsmen tick? Reasons as varied as their art, maintains Dr. Bruce Lively, Education Specialist at the Natural History Museum and coordinator of the show. Division Chief Richard Lipscomb conceived the day-long (11 a.m. to 4:30 p.m.) exhibit, not only for the benefit of the public, who are invited to attend without charge, but also for the craftsmen.

"A museum with its storehouse of knowledge and artifacts is an appropriate agency to bring crafts together," Lively said. "Such diverse fields could become cloistered. Most creative efforts can be stimulated by communication and association."

Kay McBride, a basket-weaver, agrees. She displayed her creations last year and will come back in June. She appreciates the feeling of fellowship on this Grandma-Moses type of day.

Why does she weave?
"I saw a loom," she says a trifle mystically. "Something happened. I knew I could be happy — comfortable — working on that loom." She started making fiber rugs, and has gone on to weaving baskets.

Margot Carter Blair feels craftsmen are not so much mystics as renegades. Her creative urge started bubbling when she noticed how sterile plaster figurines looked in churches. "I thought, 'If not plaster figurines, then what?'" she remembers. "Why not banners?" She started stitching. Today her bright banners hang in churches across the country.

"Liturgical artists have the opportunity to help people make the transition between God and man," she believes. "Religious banners should bridge the gap with vibrant colors and messages."

Her high-flying messages will wave from her stitchery booth at SPECTACULAR —

TWO. Also displayed will be her hand-made flags and hangings for cribs.

Sound and scent will combine with the eye-catching delights, none blending into the American folk art scene better than the work of Judith Herman and Marguerite Shalett Herman. Their book, hot off the press, is *The Cornucopia*, which spans cookery arts of five centuries. Visitors can leaf through it — meeting up with such recipes as those for "half-hour pudding," "roasted calves' liver stuffed with a forcemeat of bread" and "gravy made of boiling bones in beer."

Fresh from their outdoor stove will come foods for tasting, representative of the cooking arts in a day when canned and packaged food was unknown.

Luanne McCoy practices another art with dough. She sculpts it.

Betty Sodderberg finds another use for onions. She uses them to dye her wools for weaving.

The Honanie family rely on their Indian heritage for their skill in making Kachina dolls, those embodied spirits of Indian tribes whose presence enriched Hopi dwellings.

What makes a top spin? That is a question that will be answered by the display of Bob Wade, Chief of the Exhibitions Department of the Natural History Museum. His whirligig objects will catch the eyes of top lovers aged 6 to 60, while Richard Patterson will be making tops nearby. For sound effects, the 139th Street Quartet will take center stage to flood the air waves with music. And in the characteristic tiny stage of puppeteers, slapstick dramas of the age-old art will come to life for the entertainment of children in the crowd.

The show will be a spectacular exhibition of Americana today. □

Mary Alice Zeman is a docent at the Natural History Museum of Los Angeles County and editor of the Docent Roundtable Newsletter.

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